



“Test & Evaluation in the Midst of Conflict: Confronting the New War”

M&S in support of T&E and War

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Presentation Scope

- **Relevant findings from DOT&E/LFT&E-sponsored studies**
 - **M&S Survey of 21 acquisition programs including FAAD C2, ATACMS BAT, Javelin, SADARM, C2 Vehicle, M1A2, Crusader, Comanche, AIM-9X, SLAM-ER, F/A-18E/F, V-22, UHF Follow On, LPD-17, AN/BSY-2, SBIRS, EELV, B-2, F-22, ABL, SFW**
 - **M&S Pilot Projects: Common Missile, ERGM, T-38 AUP**
- **M&S-related findings from H&AI work for other clients including OSD/DDR&E, MDA, JFCOM, Army (FCS and OFW)**

Background: M&S Survey Objective

- **For each selected acquisition program, obtain data concerning:**
 - **types of M&S in use**
 - **how M&S are applied**
 - **who develops, owns & maintains M&S**
 - **how M&S are certified for use**
 - **the extent of programs' investment in M&S**

Rationale:

DOT&E was considering how to make better use of M&S
Additional information was needed

Background:

Pilot Project Overview

- **Pilot Project Purpose**
 - **Develop a methodology to determine how best to use M&S in support of acquisition programs**
- **Pilot Project Approach**
 - **Coordinate with SAEs, PEOs, and Program Offices**
 - **Characterize data needed to support acquisition decision making**
 - **Categorize potential opportunities for M&S to support those acquisition decisions**
 - **Describe the risks and benefits of using M&S-generated data to support these acquisition decisions**
 - **Determine whether findings can be generalized into methodological approach**

M&S in Support of T&E and War: Enhance System Operational Utility

- **Explore the capabilities trade space**
 - *“We haven’t done a good enough job defining the specific requirement” -- Maj Gen Whitlow, USMC*
- **Support development of robust CONOPS**
- **Understand what the system can bring to the fight**
 - **campaign-level modeling**

M&S in Support of T&E and War: Get Systems to the User Quickly

- **Capabilities-based Acquisition**
 - MDA
- **Collaborative Environments**
 - Javelin
- **System Integration Labs**
 - T-38 AUP
- **Optimized Test Design**
 - PAC-3

M&S in Support of T&E and War: Improve the Readiness of the Warfighter

- **Expand use of HWIL/MITL simulations**
 - investment
 - linkages/integration
 - MDA example
- **Evolve end-to-end simulations**
 - FAAD C2
- **Enhance the ability to train while deployed or deploying**



M&S in Support of T&E and War: Plan for Resource Availability

- **Investment in M&S needed early**
- **M&S development must fit with program needs**
- **Opportunity to increase M&S “sharing”**
- **Common Missile Program example**

M&S in Support of T&E and War: Pioneer Improvements in M&S

- **Models appropriate for software-intensive systems**
 - T-38 AUP
- **Cost models**
- **Human performance**

M&S in Support of T&E and War: Strengthen M&S Credibility

- **VV&A status**
- **Pre-test prediction, post-test analysis**
- **Examine the system performance envelope**

Improving M&S Responsiveness

- **OSD/DAB**
- **Service Acquirer**
- **User**
- **Testers**
- **Developer**
- **Congress**

Stakeholder Decisions

**Data/Information
required to support
Decision-making**

- **Confidence**
- **Timeliness**
- **Cost**

**Expert
Opinion**

M&S

Experiments

Demos

Field T&E

- Require:**
- **Funding**
 - **Personnel**
 - **Time**